



Memo

date: March 1, 2000
to: E. Lessard
from: D. Passarello
subject: ISMS Matrix

ISM Topic: Core Function 1, Define the Scope of Work
Guiding Principle 4, Balance Priorities

- Need to specify ownership of documentation resulting from implementation of OPM 2.29.

ISM Topic: Core Function 2, Analyze the Hazards

- Provide guidance to building managers and work planner in the use of FUA.
- Revise work planning process to reference FUA. EWP's with moderate/high hazards need to consider FUA.

ISM Topic: Core Function 3, Develop/Implement Hazards Control
Guiding Principle 5, Identification of Safety Standards and Requirements
Guiding Principle 6, Hazard Controls Tailored to Work Being Performed.

- Prepare matrix of OPM versus subject areas.
- ESHQ Division is responsible for the maintenance of the OPM. Using the OPM/SA matrix, implement a process to inform document author of new/revised Subject Areas.

ISM Topic: Core Function 4, Perform Work
Guiding Principle 7, Operations Authorization

- Improve systems, defined in OPM 9.1.2, 9.2.4, and 9.3.2, to ensure action items resulting from an experimental review committee or walk throughs, which are not recorded on a checklist, are closed out.

ISM Topic: Core Function 5, Feedback and Improvement

- Revise OPM 2.29 to ensure that authorization to perform an experiment is contingent on a review prior to running period.
- Revise OPM 9.2.1 and 9.3.1 to link the annual review requirement of ESH 1.3.5 to the C-A experimental reviews performed prior to a running period.

ISM Topic: Guiding Principle 1, Line Management Responsibilities

Guiding Principle 2, Clear Roles and Responsibilities

- Verify OPM 1.12 address C-A training for "Conference Attendees", film badge policy, and User Training
- Recommend creating generic C-A R2A2 for visitors, users, and contractors that incorporates existing training /user programs

ISM Topic: Guiding Principle 3, Competence Commensurate With Responsibility

- C-A needs to reinforce its goal of 90% trained by 9/30/00.

Additional concerns:

- Improve final sign-off of closure of conventional safety issues on the Experimental Safety Review Check-off list to ensure completion prior to experiment start-up.
- Develop a C-A OPM revision schedule for the integration of SBMS requirements into C-A OPMs.
- Revise Quality Assurance procedures to reflect implementation of the BNL SBMS.
- C-A assessment schedule database indicates when a follow-up/next audit is required. Revise schedule to include these assessments.
- Revise C-A assessment result database to include scheduled completion date for corrective actions resulting from assessment findings and/or observations.

cc:

P. Cirnigliaro

R. Karol

W. Sims

Core Function 1, Define the Scope of Work

Guiding Principle 4, Balance Priorities

ISMS Verification Criteria	
a. Processes are defined and implemented to establish the scope of work of all S&T "Machine" Operations and Maintenance.	OPM 2.28 and activity related OPMs.
b. Processes are defined and implemented for translating major S&T "Machine" Operations, Maintenance, and Construction projects into discrete project tasks.	OPM 2.28, activity related OPMs, and OPM section 9
c. Processes are defined and implemented to integrate ES&H considerations and priorities into the planning for all S&T "Machine" Operations, Maintenance, and Construction Activities.	OPM 2.28, activity related OPM, and OPM section 9
d. Processes are defined and implemented to establish the ES&H performance expectations of staff participating in all S&T "Machine" Operations, Maintenance, and Construction Activities.	Activity related OPM, JTA's and R2A2
e. Processes are defined and implemented to establish the scope of work of all S&T "Machine" users.	OPM 2.29 and OPM section 9.
f. Processes are defined and implemented to integrate ES&H considerations and priorities into the planning for all user activities.	OPM 2.29 and OPM section 9.
g. Processes are defined and implemented to establish the ES&H performance expectations of staff participating in all user activities.	OPM 2.28 and OPM section 9.
System Implementation: Assess how well the conduct of your organization's activities/work (including BNL staff, visitors, users, contractors, etc.) conform to required practices and requirements. Specific items to consider are:	
<ul style="list-style-type: none">Are the internal processes used to translate funded activities into discrete S&T machine operations maintenance, and construction activities clearly defined?	Operations and maintenance activities are clearly defined in C-A OPM. Construction activities are addressed in OPM section 9
<ul style="list-style-type: none">Do the processes ensure ES&H considerations are incorporated into the planning for S&T Machine Operations and Maintenance activities?	OPM 2.28 In addition, C-A QAP 1001, Independent Assessments, provided the protocol for evaluating how well C-A performed against established criteria in 2.28. Assessment results, included required corrective action and responsible individual(s), are documented and distributed to C-A management. Assessment results are tracked in the C-A QA assessment database. <ul style="list-style-type: none">C-A assessment schedule database indicates when a follow-up/next audit is required. Revise schedule to include these assessments.Revise C-A assessment result database to include scheduled completion date for corrective actions resulting from assessment findings and/or observations
<ul style="list-style-type: none">Are the processes that are defined and implemented to establish the ES&H performance expectations of users clearly defined?	OPM 2.29 ES&H performance expectations are clearly defined in the Work Control documentation that is generated by the Experimental Spokesperson and approved by the C-A ESHQ Division head, or designee, and liaison physicist. Minimum elements of this Work Control System are detailed in OPM 2.29

	<p>paragraph 5.1.4. The ESHQ Division assures that expectations are clearly defined and signs off on documents signifying that the experiment may proceed. Copies of this documentation are available from the C-A Work Planning Manager and Associate Chair for ESHQ.</p> <ul style="list-style-type: none">• Need to specify ownership of official copies of Work Control documentation.
<ul style="list-style-type: none">• Are roles and responsibilities of individuals clearly defined?	R2A2 and activity related OPMs

Core Function 2, Analyze the Hazards

ISMS Verification Criteria	
a. Processes are defined and implemented to identify, analyze, and categorize the hazards associated with individual S&T "Machine" Operations, Maintenance, and Construction Activities (including the activities of users, visitors, and subcontractors).	OPM 2.5, 2.28, 2.29, activity related OPM, SAD, and FUA
b. Processes are defined and implemented to identify, analyze, and categorize the hazards associated with individual S&T "Machine" user activities.	OPM 2.29, OPM section 9, OMM, FUA, and SAD for Collider.
c. Processes are defined and implemented for involving S&T "Machine" Users, Operations, Maintenance, and Construction staff in identifying the hazards associated with their work.	OPM 2.28, 2.29, activity related OPM, SAD, and FUA
<u>System Description and Implementation:</u> Assess how well the conduct of your organizations activities/work (including BNL staff, visitors, users, contractors, etc.) conform to required practices and requirements. Specific items to consider are:	
<ul style="list-style-type: none"> Do the processes ensure ES&H hazards associated with S&T Machine Operations and Maintenance activities are identified and analyzed. (Consider the role of Safety Analysis Reports/Documents, USQD/USID processes etc) 	OPM 2.28, activity related OPM, SAD, and FUA All operations and maintenance jobs are recorded by the C-A Work Planners, on the C-A Work Control Log. In addition, those jobs classified as moderate or high hazard require an EWP
<ul style="list-style-type: none"> Do the processes ensure that the proposed S&T Machine Operations and Maintenance, and Construction activities can be conducted within operational boundaries imposed by the Facility Use Agreements (FUAs)? 	Addressed in OPM 9.3.1. <ul style="list-style-type: none"> Provide guidance to building managers and work planners in the use of FUA.
<ul style="list-style-type: none"> Do the processes ensure appropriate ES&H expertise is included in the review of S&T Machine Operations, Maintenance, and Construction activities? 	OPM 2.28 and activity related OPMs.
<ul style="list-style-type: none"> Do the processes ensure that the ES&H hazards associated with experimental activities performed by users are identified and analyzed and can be conducted within the operational boundaries imposed by the FUAs? 	OPM 2.29 and 9.2.1 Low hazards and skill of the craft experimental work is documented in a list with a cover sheet (OPM-ATT- 2.29.a) and sign-off sheet (OPM-ATT- 2.29.b). Medium and High hazards are documented on an EWP (OPM-ATT- 2.28.g) by the C-A Work Planning Manager. <ul style="list-style-type: none"> Provide guidance to building managers and work planners in the use of FUA. Revise work planning process to reference FUA. EWP's with moderate/high hazards need to consider FUA.
<ul style="list-style-type: none"> Are roles and responsibilities of individuals clearly defined? 	R2A2

Core Function 3, Develop/Implement Hazards Control
Guiding Principle 5, Identification of Safety Standards and Requirements
Guiding Principle 6, Hazard Controls Tailored to Work Being Performed.

ISMS Verification Criteria

a. Processes are defined and implemented (with a strong reliance on worker involvement and support from ES&H Subject Matter Experts) to identify the appropriate BNL hazards/work control requirements for S&T "Machine" Operations, Maintenance, and Construction activities.	OPM 2.28 and activity related OPMs
b. Processes are defined and implemented to ensure ES&H controls are integrated into S&T "Machine" Operations, Maintenance, and Construction procedures.	OPM section 1
c. S&T "Machine" Operations, Maintenance, and Construction managers establish and implement the controls necessary to manage the hazards associated with S&T "Machine" Operations, Maintenance, and Construction Activities.	OPM 2.28
d. Processes are defined and implemented for ensuring the hazards associated with individual S&T "Machine" Operations, Maintenance, and Construction Activities do not adversely impact facility staff and users or environment.	OPM 2.28, 2.29 and OPM section 9
e. Processes are defined and implemented to formally plan the conduct of S&T "Machine" Operations, Maintenance, and Construction Activities in a manner that ensures the appropriate hazards controls (including staff training), and ES&H roles and responsibilities are defined, accepted, and implemented.	OPM 2.28 and activity related OPMs
f. Processes are defined and implemented (with a strong reliance on worker involvement and support from ES&H Subject Matter Experts) to identify the hazards and the appropriate hazards/work control requirements for S&T "Machine" user activities.	OPM 2.28 and activity related OPMs
g. Processes are defined and implemented to ensure ES&H controls are integrated into S&T "Machine" user procedures.	OPM 2.29, activity related OPM, and OPM section 9
h. S&T "Machine" Operations and Maintenance organizations establish and implement the controls necessary to manage the hazards associated with user activities.	OPM 2.29, activity related OPM, and OPM section 9
i. Processes are defined and implemented for ensuring the hazards associated with individual user activities do not adversely impact facility staff and users or environment.	OPM 2.28, 2.29, and activity related OPM
j. Processes are defined and implemented to formally plan the conduct of user activities in a manner that ensures the appropriate hazards controls (including staff training), and ES&H roles and responsibilities are defined, accepted, and implemented.	OPM 2.29, activity related OPM, and OPM section 9

System Implementation:

Assess how well the conduct of your organization activities/work (including BNL staff, visitors, users, contractors, etc.) conform to required practices and requirements. Specific items to consider are:

<ul style="list-style-type: none"> Do the processes ensure that the proposed research activities can be conducted within operational boundaries imposed by the Facility Use Agreements (FUAs)? 	OPM 9.2.1 and 9.3.1
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<ul style="list-style-type: none"> Do the processes ensure that appropriate hazard controls (including staff qualifications, PPE) are imposed. 	<p>OPM 2.28, 2.29, and activity related OPMs</p> <p>Appropriate hazard control is implemented in the experiments. The system of control is the specific requirements of OPM 2.29 and the various OPM's that would be related to the particular experiment. It is the Experimental Safety Review Committee that ties everything together to assure that all items are addressed before the experiment may proceed.</p>
<ul style="list-style-type: none"> Do the processes ensure applicable Lab-wide procedures are identified and applied? 	<ul style="list-style-type: none"> Prepare matrix of OPM versus subject areas.
<ul style="list-style-type: none"> Do the processes ensure appropriate ES&H expertise is included in the identification of controls? 	<p>OPM 2.28, 2.29, and OPM section 9</p> <p>For experiments, ES&H involvement is demonstrated via the approval of the ESHQ Division Head on all Experimental Work Planning documentation. All operations, maintenance, and construction jobs are recorded by the C-A Work Planners, on the C-A Work Control Log. In addition, those jobs classified as moderate or high hazard require an EWP.</p>
<ul style="list-style-type: none"> Do the processes ensure that worker involvement is included in the identification and control of hazards associated with S&T Machine Operations, Maintenance, and Construction Activities. 	<p>OPM 2.28</p>
<ul style="list-style-type: none"> Do the process ensure that changes or additions to lab-wide procedures are incorporated as necessary into the management of S&T Machine operations, maintenance, and construction activities? 	<p>All C-A ESHQ Division personnel receive updates to SBMS.</p> <ul style="list-style-type: none"> ESHQ Division is responsible for the maintenance of the OPM. Using the OPM/SA matrix, implement a process to inform document author of new/revised Subject Areas.
<ul style="list-style-type: none"> Are ES&H controls translated into supporting activity/process specific standard operating procedures (SOPS) 	<p>OPM</p>
<ul style="list-style-type: none"> Do subcontracting processes ensure the appropriate flow down of ES&H requirements into subcontracts for S&T Machine operations, maintenance, and construction activities? 	<p>BNL Training programs and OPM 2.28</p>
<ul style="list-style-type: none"> Are roles and responsibilities of individuals clearly defined? 	<p>R2A2</p>

Core Function 4, Perform Work

Guiding Principle 7, Operations Authorization

ISMS Verification Criteria	
a. Processes are defined and implemented to confirm the readiness to perform work on S&T "Machine" Operations, Maintenance, and Construction Activities. The processes ensure that: <ul style="list-style-type: none">personnel (including visitors, users, contractors, etc.) are qualified and trained for performance of work in accordance with the controls establishedthe hazards have been identified and analyzed and the work controls are in placethe necessary ES&H support functions and interfaces required (e.g., training, maintenance, radiological protection, etc.) have been established.	OPM 2.28 and OPM section 9, (OOR and AAR)
b. Processes are defined and implemented to confirm the readiness of visitors, users, contractors, etc to perform experimental activities using S&T "Machines". The processes ensure that: <ul style="list-style-type: none">personnel (including visitors, users, contractors, etc.) are qualified and trained for performance of work in accordance with the controls establishedthe hazards have been identified and analyzed and the work controls are in placethe necessary ES&H support functions and interfaces required (e.g., training, maintenance, radiological protection, etc.) have been established.	OPM 2.29, and OPM sections 1 and 9
c. Processes are defined and implemented to grant start-up approval for S&T "Machine" Operations, Maintenance, and Construction Activities.	OPM 2.28 and OPM section 9
d. Processes are defined and implemented to ensure S&T "Machine" Operations, Maintenance, and Construction work is performed within the bounds of procedural requirements.	Various methods/tools are used to review/monitor work: OPM 2.28 including closeout and feedback on EWP OPM 2.28.d defines weekly meetings OPM 2.1, C-A Operations Organization & Administration OPM 2.2, Operating Practices OPM 9.4.1, Safety Inspections OPM 9.4.2 C-A Self-Assessment QAP-1001, Independent Assessments and includes in attachment 'd' .
<u>System implementation:</u> Assess how well the conduct of your organization's activities/work (including BNL staff, visitors, users, contractors, etc.) conform to required practices and requirements. Specific items to consider are:	
<ul style="list-style-type: none">Do the processes clearly define designation of approval authority for S&T machine operations, maintenance, and construction activities?	OPM 2.28, signatures on EWP, various OPM contain checklist, section 9 outlines committee reviews
<ul style="list-style-type: none">Do the processes ensure that all hazard controls (including training, qualifications, PPE etc) have been established prior to approval to commence S&T machine operations, maintenance, and construction activities?	OPM 2.28, signatures on EWP, various OPM contain checklist, section 9 outlines committee reviews <ul style="list-style-type: none">Improve systems, defined in OPM 9.1.2, 9.2.4, and 9.3.2, to ensure action items resulting from an experimental review committee or walk throughs, which are not recorded on a checklist, are closed out.

<ul style="list-style-type: none"> Do the processes ensure the necessary ES&H support function interfaces have been established prior to commencing S&T machine operations, maintenance, and construction activities? 	OPM 2.28 and activity related OPM
Do the processes ensure that appropriate ES&H controls have been established and authorization is given to conduct research activities at "user facilities"	OPM 2.29, OPM 9.2.1 and activity related OPM Experimental work planning and Experimental Safety Committee Review meetings detail the ESH controls these controls are agreed upon by experimental spokesperson, liaison physicist and ESHQ.
Are roles and responsibilities of individuals clearly defined?	R2A2

Core Function 5, Feedback and Improvement

ISMS Verification Criteria

S&T "Machine" Operations, Maintenance, and Construction management conduct robust self-assessments to ensure the performance of their S&T activities meet customer and stakeholder expectations, conform to BNL standards and requirements, and identify and implement opportunities for improvements.

OPM 2.28, Feedback section of EWP, OPM 9.4.2, C-A Self-Assessment, and QAP-1001, Independent Assessments

Description and Implementation:

Assess how well the conduct of your organization's activities/work (including BNL staff, visitors, users, contractors, etc.) conform to required practices and requirements. Specific items to consider are:

<ul style="list-style-type: none">Does your organization's self-assessment program assign responsibilities and schedules for assessing performance and identifying improvements in management of ES&H aspects of experimental activities?	OPM 2.29 requires yearly reviews, OPM section 9 of the OPM requires the review of all significant changes to experimental activities and at the beginning of every run.
<ul style="list-style-type: none">Do processes exist for collecting ES&H performance feedback for discrete S&T Machine Operations, Maintenance, and Construction activities?	OPM 2.28, Feedback section of EWP, OPM 9.4.2, C-A Self-Assessment, and QAP-1001, Independent Assessments
<ul style="list-style-type: none">Does your organization's self assessment program describe the processes used to assign responsibilities for and tracking corrective/improvement actions?	OPM 9.4.2, C-A Self-Assessment, and QAP-1001, Independent Assessments
<ul style="list-style-type: none">Do the processes ensure that authorization to perform an experiment is contingent on an annual review to assure that their design and operation have not changed and they conform to all applicable requirements?	<ul style="list-style-type: none">Revise OPM 2.29 to ensure that authorization to perform an experiment is contingent on a review prior to running period.Revise OPM 9.2.1 and 9.3.1 to link the annual review requirement of ESH 1.3.5 to the C-A experimental reviews performed prior to a running period.

Guiding Principle 1, Line Management Responsibilities**Guiding Principle 2, Clear Roles and Responsibilities****ISMS Verification Criteria**

a. Clear and unambiguous R2A2s are defined for and understood by facility managers and staff (including visitors, users, contractors, etc.) associated with their involvement in ensuring S&T "Machine" Operations, Maintenance, and Construction work controls conform to BNL standards and requirements.

C-A Staff R2A2

- **Verify OPM 1.12 address C-A training for "Conference Attendees", film badge policy, and User Training**
- **Recommend creating generic C-A R2A2 for visitors, users, and contractors that incorporates existing training /user programs**

b. Clear and unambiguous R2A2s are defined for and understood by facility managers and staff (including visitors, users, contractors, etc.) associated with the control of experimental activities performed on the "S&T Machine" conform to BNL standards and requirements.

Same as 'a' above.

System Implementation:

Assess how well the conduct of your organization's activities/work (including BNL staff, visitors, users, contractors, etc.) conform to required practices and requirements. Specific items to consider are:

- Do your processes provide for appropriate and clear flow down of ES&H - related roles and responsibilities for implementing the ESH STD 1.3.5 and ESH STD 1.3.6. and supporting organizational documents.

OPM 2.28 and 2.29, R2A2

- Do your processes provide for appropriate and clear flow down of ES&H related roles and responsibilities for conduct of S&T Machine Operations, Maintenance, and Construction Activities, which are controlled through internal organizational procedures (SOPS)

OPM section 1

Guiding Principle 3, Competence Commensurate With Responsibility	
ISMS Verification Criteria	
a. Processes are defined and implemented to ensure that managers and staff (including visitors, users, contractors, etc.) involved with the performance of S&T "Machine" Operations, Maintenance, and Construction Activities are competent (i.e., trained and qualified) to carryout their R2A2s.	BNL Training program, C-A Training Policy, and C-A staff R2A2. The database for training/qualification records is the BNL BTMS. The BTMS notifies supervisor and/or individuals when training is going to expire.
b. Processes are defined and implemented to ensure that managers and staff (including visitors, users, contractors, etc.) involved with performing experimental activities using the S&T "Machine" are competent (i.e., trained and qualified) to carryout their R2A2s.	C-A Staff R2A2. In addition, training requirements are specified on the EWP as required by OPM 2.28 and ESH 1.3.5.
<u>Description and Implementation</u>	
Do processes ensure that training and qualification needs are assessed in the <u>planning</u> of: <ul style="list-style-type: none"> S&T Machine Operations, Maintenance, and Construction activities Research activities to be conducted at "user facilities" 	JTA and OPM 2.28, 2.29 and 9.2.1
Do processes ensure training and qualification requirements are <u>satisfied prior to initiating</u> : <ul style="list-style-type: none"> S&T Machine Operations, Maintenance, and Construction activities Research Activities at "user facilities" 	EWP review, OPM 9.2.1 and 9.3.1